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Selected US specifications from IPC sub-class E05C

## (54) Door fastenings

(57) Fastening for a sliding door, particularly for purpose-built toilets for use by the disabled includes a bolt 13 with a hooked end and mounted to rotate with a spindle 11 provided on one end with a handle 12 on the inner side face of the door in use, the other end of the spindle being provided with a groove or other drive formation for emergency release by means of a tool, key or coin.

Supporting structure 10 of the fastening may be mounted on face of the door or morticed into door, as shown.

The bolt 13 mounted on a square portion of spindle 11 can be rotated through 180° from a position engaging a formation in door jamb to a position lying within structure 10; in Figure 4 the bolt rotates through about 110° to over vertical position in which it is retained by spring (21).

As shown plates 14, 15 have grab handles 16, 17; in Figure 5 the spindle extends through circular rose plates (25, 26).

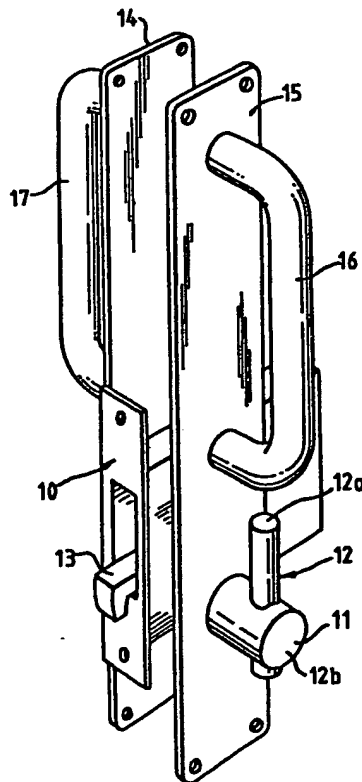


Fig.1

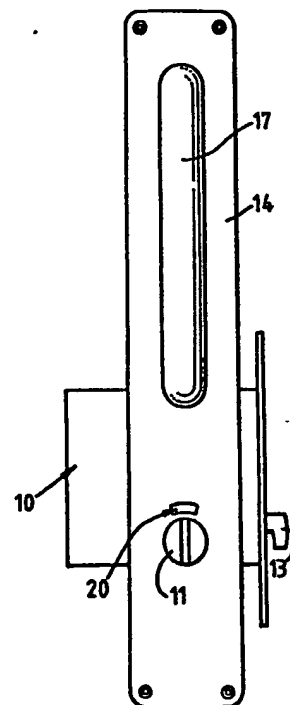


Fig.2

The drawing(s) originally filed was (were) informal and the print here reproduced is taken from a later filed formal copy. The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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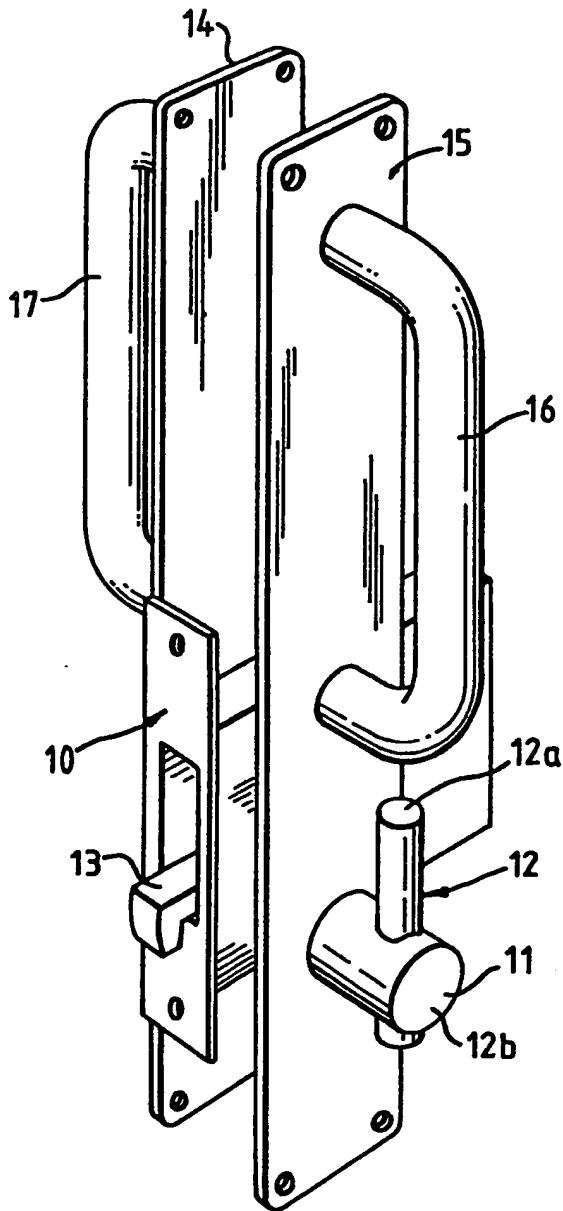


Fig.1

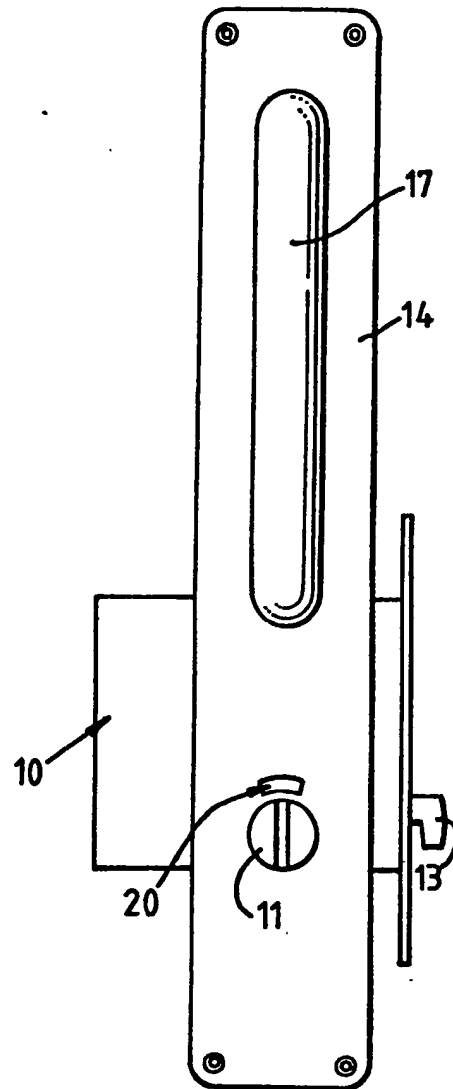
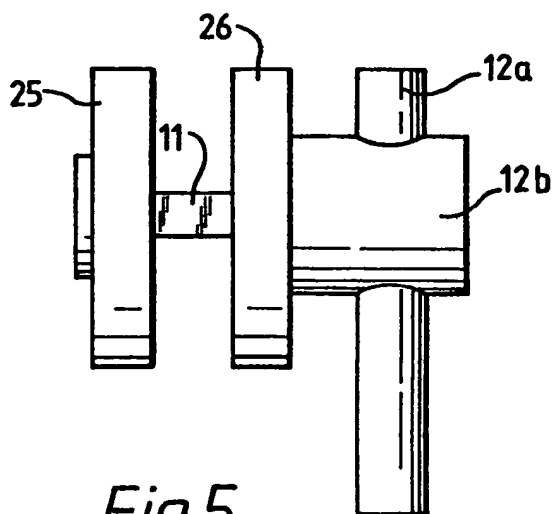
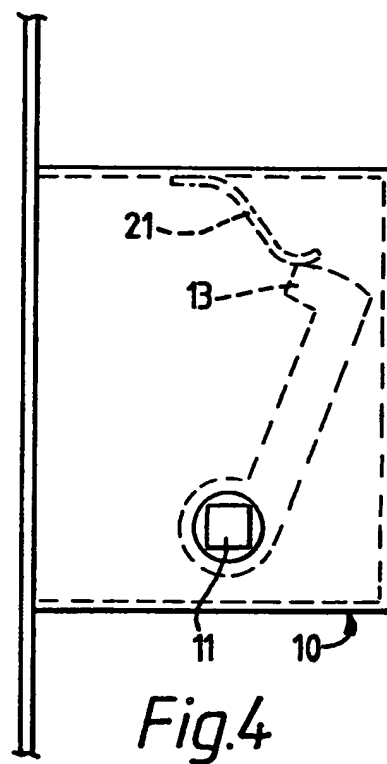
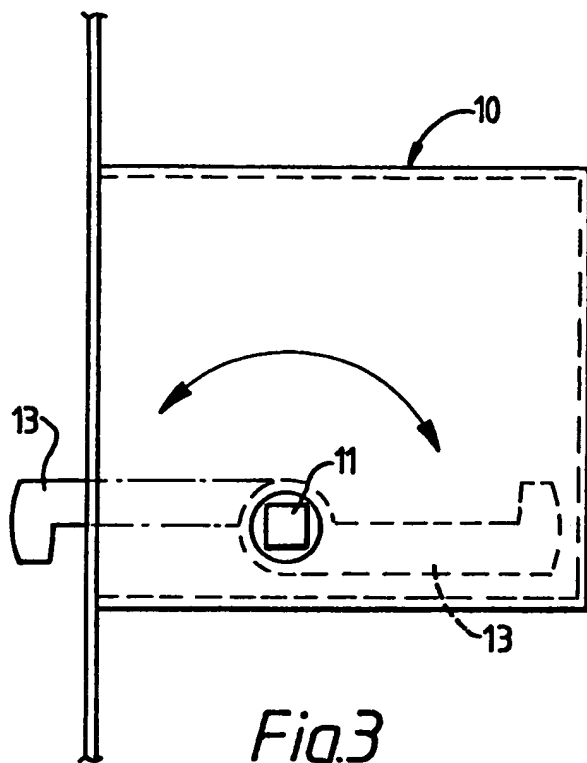


Fig.2

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## SPECIFICATION

## Door fastenings

5 This invention relates to fastenings for sliding doors for toilets and the like including provision for emergency release from the outside of the door. The invention is particularly but not exclusively for purpose-built toilets for use by the disabled.

10 The object of the invention is to provide a door fastening which is simple and economical to provide, easy to operate, particularly by a disabled person, and which is compact and neat in appearance.

15 In accordance with the invention there is provided a fastening for a sliding door comprising a catch assembly including a locating structure for mounting in or on a leading edge portion of a sliding door in use, a rotatable spindle pivoted on a

20 transverse axis through said structure and provided with a handle formation at one end projecting from one side face of the door in use, a catch having a hooked end for engagement with a mating formation on a jamb of the door to prevent sliding movement  
25 from the closed position in use and being mounted on the spindle for angular movement therewith, and a drive formation on the opposite end of the spindle accessible from the side of the door opposite said face for engagement by a tool or key enabling the  
30 catch to be released in an emergency from the latter side.

Preferably the locating structure is adapted to be morticed into the thickness of the door though it is contemplated that it may also take the form of a rim  
35 lock type of arrangement.

It is also preferred that the catch be an elongate formation extending generally horizontally with the hooked end directed downwards at the closed position so that it is retained in said position by  
40 gravity.

Said fastening may form part of an assembly including a pair of plates to be secured to the opposite faces of the door in use, each mounting a respective pull handle to facilitate sliding movement  
45 of the door, the spindle of the catch assembly locating in said plates.

The handle formation is preferably a lever type handle provided with a projection on opposite sides of the spindle axis, e.g. in the manner of a tommy  
50 bar, to facilitate operation by persons having some manual disability.

An embodiment of the invention with certain modifications and alternatives is now more particularly described with reference to the  
55 accompanying drawings, wherein,

*Figure 1* is a perspective view of a catch and handle assembly;

*Figure 2* is a side elevation of the assembly from an opposite side;

60 *Figure 3* is a detail side elevation of one form of a catch portion of the assembly;

*Figure 4* is a like detail of a modified form of catch portion; and

65 *Figure 5* is an elevation of an alternative spindle and knob arrangement.

The assembly is mounted in use on a leading edge part of a sliding door (not shown) with a supporting structure of the assembly in the form of a box 10 morticed into said edge part in conventional fashion  
70 in use. In an alternative construction (not shown) box 10 would take the form of a rim lock to be mounted on a face of the door.

The catch assembly further includes a rotatable spindle 11 pivoted on a transverse axis through the sides of box 10 and provided with a handle 12 on one  
75 end which will project from the inner side face (in the case of a toilet) of the door in use.

A square portion of spindle 11 within box 10 mounts an elongate catch 13 having a hooked end which, in the arrangement shown in Figures 1-3, can be rotated by means of handle 12 through 180° from a first generally horizontal position at which the hooked end is directed downwards and projects from the edge of the door to a second horizontal  
85 position in which it lies within the box 10.

The spindle extends operatively through a pair of parallel mounting plates 14, 15 which are operatively attached to the inner and outer side faces of the door in use, each provided with a respective pull or grab  
90 handle 16, 17 for sliding movement of the door. The catch operating handle 12 projects from plate 15 below pull handle 16 and is shaped in the form of a crossbar 12a extending on opposite sides of the axis of spindle 11 through a boss 12b in the manner of a  
95 tommy bar, this shape facilitating operation by those with manual disability.

The handle and catch assembly occupy minimum space adjacent the door edge so that the door can be slid fully open e.g. to permit easy access of a  
100 wheelchair to a purpose built toilet for the disabled. The door is then slid closed and is secured by turning handle 12 to the position indicated in Figures 1 and 2 at which the hooked end of catch 13 engages a mating formation (not shown) morticed into a jamb  
105 of the door.

A window 20 may be provided in the outer plate 14 to co-act with a coloured flag or the like carried on spindle 11 showing whether the catch is engaged or not, i.e. whether the toilet is occupied. The end of spindle 11 opposite to handle 12 lies almost flush with plate 14 and, in this example, is provided with a cross groove which, in an emergency, can be engaged by a coin, screwdriver or other tool to release the catch and open the door from the outside.

115 Other forms of emergency release formation may be provided, for example a squared aperture in the end of the spindle or some other formation engageable by a key or tool.

If the interior structure of the door is not dimensioned to permit installation of the type of morticed box 10 shown in Figures 1-3 an alternative form shown in Figure 4 may be employed in which the depth of box 10 is less and the catch 13 rotates through about 110° to an over-vertical position  
120 shown in broken lines in Figure 4 at which it is retained by a leaf spring 21 which presses on its hooked end.

Other forms of grab or pull handles may be employed, for example the door may already be provided with recessed or other handles and in this  
130

case an alternative form of spindle mounting may be employed as shown in Figure 5. Here instead of the large plates 14 and 15 the spindle extends through circular rose plates 25, 26 co-axial with the spindle on opposite faces of the door, the operation being as described above, box 10 is not shown in Figure 5 for clarity.

While particularly convenient for use by disabled persons the door fastening of the invention in the form described above or otherwise can be employed on any type of sliding door, for example toilets, bathrooms, showers, changing-rooms or cubicles and the like.

## 15 CLAIMS

1. A fastening for a sliding door comprising a catch assembly including a locating structure for mounting in or on a leading edge portion of a sliding door in use, a rotatable spindle pivoted on a transverse axis through said structure and provided with a handle formation at one end projecting from one side face of the door in use, a catch having a hooked end for engagement with a mating formation on a jamb of the door to prevent sliding movement from the closed position in use and being mounted on the spindle for angular movement therewith, and a drive formation on the opposite end of the spindle accessible from the side of the door opposite said face for engagement by a tool or key enabling the catch to be released in an emergency from the latter side.

2. A fastening as in Claim 1 in which the locating structure is adapted to be morticed into the thickness of the door.

3. A fastening as in Claim 1 wherein the locating structure is adapted to be mounted on the door in the manner of a rim lock.

4. A fastening as in Claim 1, 2 or 3 in which the catch is an elongate formation extending generally horizontally with the hook directed downwards at the closed position so that it is retained in said position by gravity.

5. A fastening as in Claim 4 wherein the catch is rotatable between said position and a second generally horizontal position in which it lies within the locating structure.

6. A fastening as in Claim 4 wherein the catch is rotatable from said closed position to an over-vertical position at which it is retained by pressure spring means.

7. A fastening as in any preceding claim wherein the handle formation is a lever type handle provided with projections on opposite sides of the spindle axis.

8. A fastening for a sliding door substantially as herein before described with reference to and as shown in Figures 1-3 of the accompanying drawings or those figures as modified by Figure 4 and/or Figure 5 thereof.

9. A door assembly including a fastening as in any preceding claim.

10. An assembly as in Claim 9 wherein said assembly includes a pair of operatively parallel mounting plates attached to the inner and outer side

faces of the door in use and each provided with a respective pull or grab handle for sliding movement of the door.

11. An assembly as in Claim 10 wherein the rotatable spindle is pivotally rotated through said plates.

12. A door assembly substantially as hereinbefore described with reference to Figures 1 and 2 of the accompanying drawings.

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